Electronic TUBE
KEN-RAD

# 14R7

## Description and Rating

# DUPLEX-DIODE PENTODE

## GENERAL DESCRIPTION

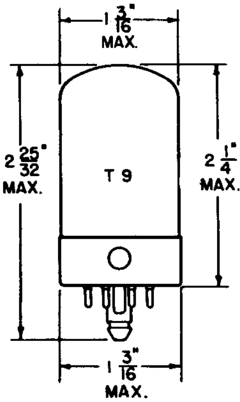
Principal Application: The 14R7 is a duplex diode, semi-remote-cutoff pentode suitable for use as a combined detector, automatic-volume-control rectifier and audio amplifier. The pentode section may also be used as a radio-frequency or intermediate-frequency amplifier. The tube features low coupling capacitance between the diode units and the pentode section.

| | |
|---|---|
| Cathode: | Coated Unipotential |
| Heater Voltage (A-C or D-C) | 12.6 Volts |
| Heater Current | 0.15 Ampere |
| Envelope: | T-9 Glass |
| Base: | D8-1, Locking-In 8-Pin |
| Mounting Position: | Any |

Direct Interelectrode Capacitances:*

| | | |
|---|---|---|
| Grid to Plate (Max) | 0.004 | μμf |
| Input | 5.6 | μμf |
| Output | 5.3 | μμf |
| Diode 1 Plate to Grid 1 (Max) | 0.005 | μμf |
| Diode 2 Plate to Grid 1 (Max) | 0.002 | μμf |

## PHYSICAL DIMENSIONS

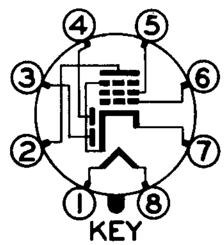



RMA 9-30

## TERMINAL CONNECTIONS

Pin 1 - Heater
Pin 2 - Plate
Pin 3 - Diode Number 2 Plate
Pin 4 - Diode Number 1 Plate
Pin 5 - Grid Number 2 (Screen)
Pin 6 - Grid Number 1
Pin 7 - Cathode, Grid Number 3, and Internal Shield
Pin 8 - Heater

## BASING DIAGRAM




RMA 8AE
*BOTTOM VIEW*

## MAXIMUM RATINGS

DESIGN CENTER VALUES:

| | | |
|---|---|---|
| Plate Voltage | 250 | Volts |
| Screen Supply Voltage | 250 | Volts |
| Screen Voltage | 125 | Volts |
| Positive D-C Grid Number 1 Voltage | 0 | Volts |
| Plate Dissipation | 2.0 | Watts |
| Screen Dissipation | 0.25 | Watt |
| Heater-Cathode Voltage | 90 | Volts |
| Diode Current for Continuous Operation (Each Diode) | 1.0 | Milliampere |

* *With external shield #308 connected to pin 7*

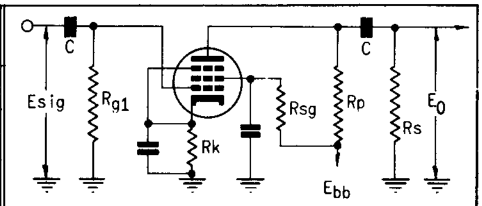
## CHARACTERISTICS AND TYPICAL OPERATION

CLASS $A_1$ AMPLIFIER

| | | | |
|---|---|---|---|
| Plate Voltage | 100 | 250 | Volts |
| Screen Voltage | 100 | 100 | Volts |
| Grid Number 1 Voltage | -1 | -1 | Volt |
| Plate Resistance (Approx) | 0.35 | 1.0 | Megohm |
| Transconductance | 3000 | 3200 | Micromhos |
| Plate Current | 5.5 | 5.7 | Milliamperes |
| Screen Current | 2.2 | 2.1 | Milliamperes |
| Grid Number 1 Voltage (Approx) for $G_m$ = 10 Micromhos | -20 | -20 | Volts |
| Average Diode Current: (Each Diode) Measured with 10 Volts D-C Applied | 2.0 | | Milliamperes |

## CLASS A RESISTANCE-COUPLED AMPLIFIER

| Rp Meg. | Rs Meg. | Rg1 Meg. | Ebb = 90 Volts Rk | Rsg | Gain | Eo | Ebb = 180 Volts Rk | Rsg | Gain | Eo | Ebb = 300 Volts Rk | Rsg | Gain | Eo |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.10 | 0.10 | * | 900 | 0.22 | 39 | 9.2 | 540 | 0.28 | 59 | 18 | 360 | 0.38 | 80 | 31 |
| 0.10 | 0.24 | * | 970 | 0.24 | 52 | 12 | 570 | 0.32 | 84 | 25 | 400 | 0.44 | 112 | 42 |
| 0.24 | 0.24 | * | 2000 | 0.69 | 57 | 8.7 | 1100 | 0.79 | 85 | 18 | 760 | 1.00 | 125 | 28 |
| 0.24 | 0.51 | * | 2200 | 0.76 | 73 | 11 | 1200 | 1.00 | 119 | 21 | 1200 | 1.10 | 158 | 36 |
| 0.51 | 0.51 | * | 4200 | 1.60 | 73 | 7.0 | 2300 | 1.80 | 105 | 17 | 1600 | 1.90 | 150 | 28 |
| 0.51 | 1.0 | * | 4600 | 1.80 | 88 | 9.6 | 2400 | 2.00 | 141 | 19 | 1600 | 2.10 | 192 | 33 |
| 0.24 | 0.24 | 10 | 0 | 0.64 | 57 | 8.5 | 0 | 0.74 | 91 | 18 | 0 | 0.88 | 131 | 30 |
| 0.24 | 0.51 | 10 | 0 | 0.71 | 73 | 11 | 0 | 0.82 | 125 | 23 | 0 | 0.96 | 177 | 38 |
| 0.51 | 0.51 | 10 | 0 | 1.60 | 68 | 7.8 | 0 | 1.70 | 114 | 16 | 0 | 1.90 | 166 | 28 |
| 0.51 | 1.0 | 10 | 0 | 1.70 | 87 | 9.6 | 0 | 2.00 | 152 | 19 | 0 | 2.20 | 216 | 33 |

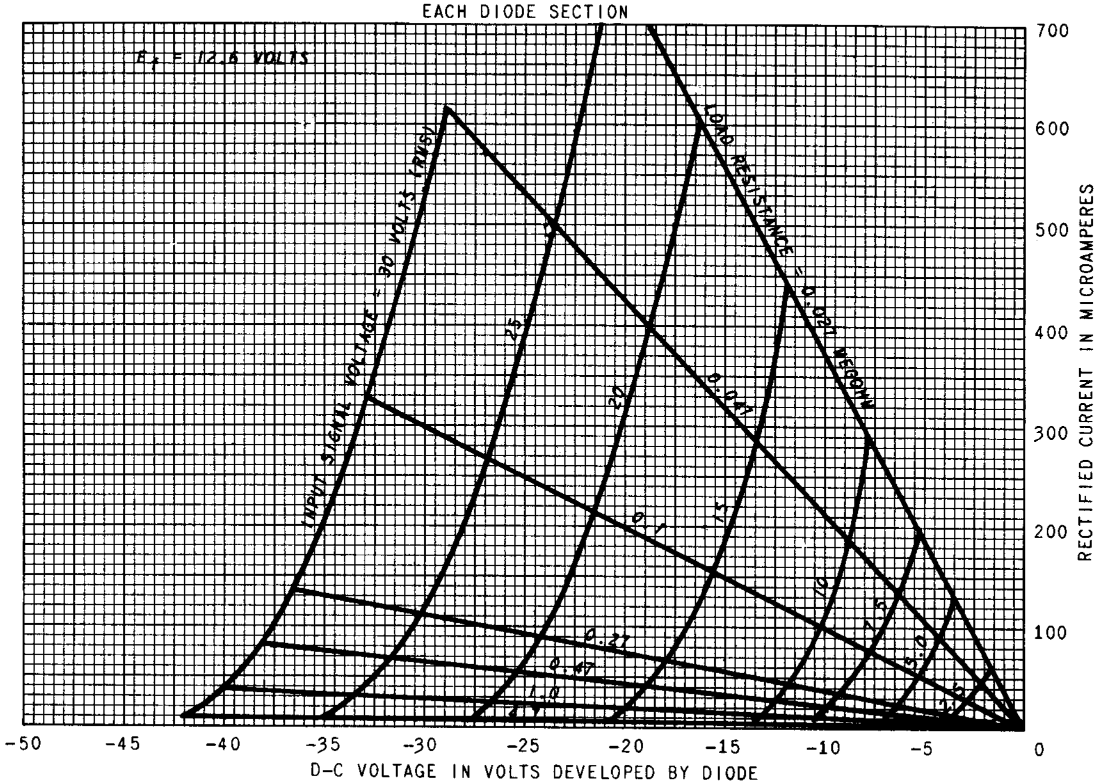



Note: Coupling capacitors (C) should be adjusted to give desired frequency response. Rk and Rsg should be adequately by-passed.

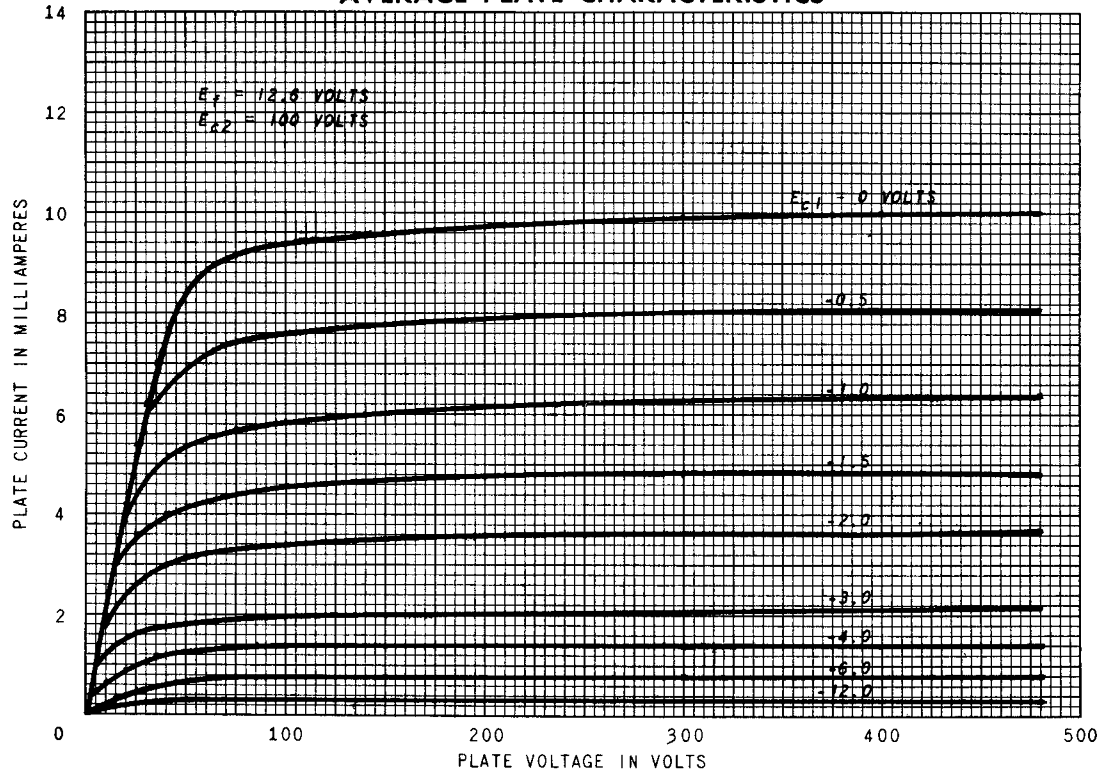
Notes: 1. Eo is maximum RMS voltage output for five percent (5%) total harmonic distortion. 2. Gain measured at 2.0 volts RMS output. 3. For zero-bias data, generator impedance is negligible. * Value of $R_{g1}$ is non-critical.

## OPERATION CHARACTERISTICS

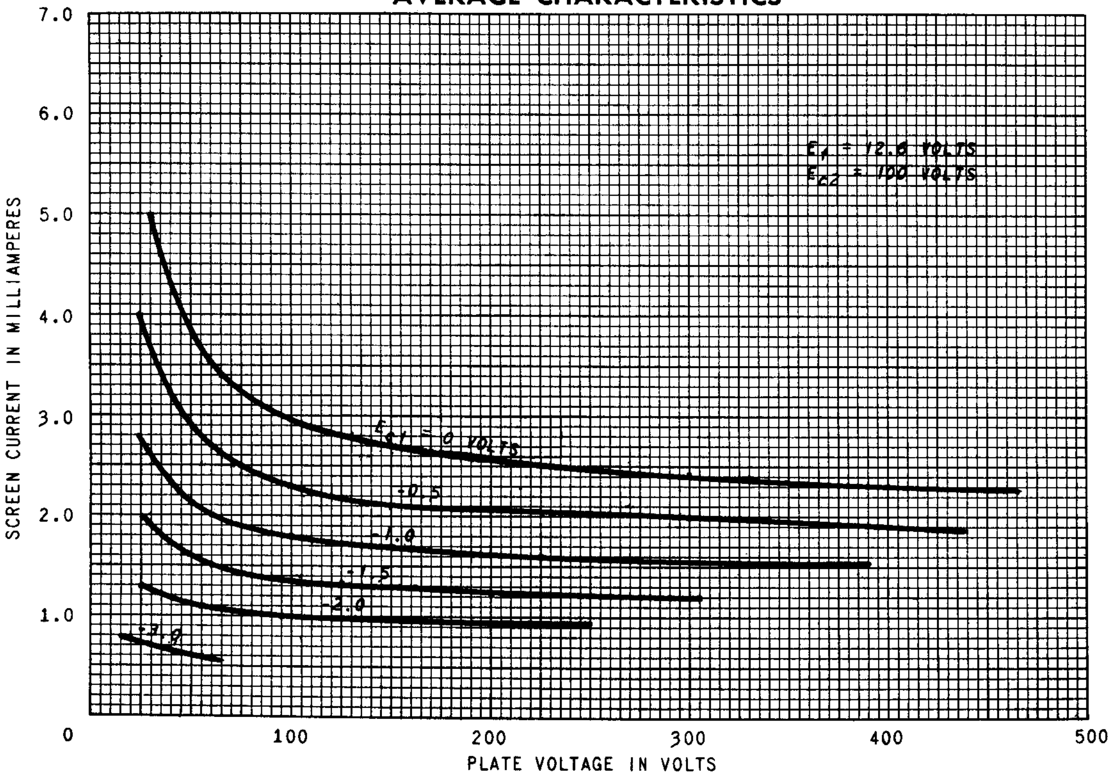
EACH DIODE SECTION



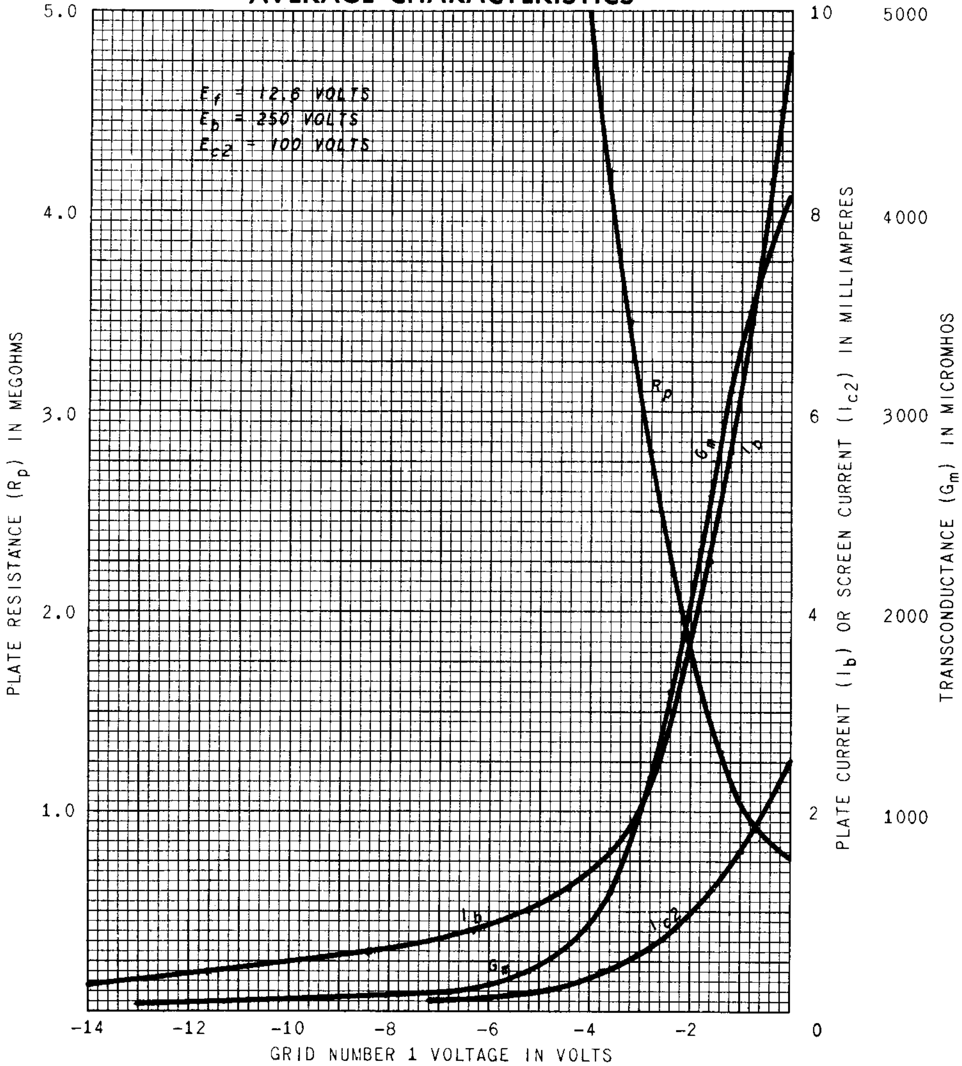
## AVERAGE PLATE CHARACTERISTICS




## AVERAGE CHARACTERISTICS



## AVERAGE CHARACTERISTICS




***Tube Divisions, Electronics Department***

**GENERAL ELECTRIC**

*Schenectady, N. Y.*

ET-T745
2-51